

**Teachers' Perspective Of The Use Of Three-Dimensional Virtual World (3DVW) In  
Teaching Pronunciation: A Qualitative Case Study**

**Dinda Nur Amaliyah<sup>1</sup>, Yudhi Arifani<sup>2</sup>, Warissara Wongsrikaew<sup>3</sup>, Nattapong Rawaree<sup>4</sup>**

**Faculty of Teacher Training Education, English Education Department, Universitas  
Muhammadiyah Gresik<sup>1</sup>**

**Faculty of Teacher Training Education, English Education Department, Universitas  
Muhammadiyah Gresik<sup>2</sup>**

**Ban Huaiduenoi School, Thailand<sup>3</sup>**

**Ban Huaidue Khoksawang School, Thailand<sup>4</sup>**

**Email: dindaamaliyah130@gmail.com\***

**ABSTRACT**

The aim of this article is to scrutinize EFL teachers' perspectives on using 3D Virtual World for teaching English pronunciation. The article is a case study with open-ended, in-depth interviews conducted with two Thai EFL teachers. The study finds topics based on a typological analysis of interview data: the use of 3DVW as a learning medium for teaching pronunciation, and teachers' perspectives on teaching using 3DVW. The findings revealed that teachers have a positive perspective on 3DVW as a medium for teaching pronunciation. It has advantages that can help students with their pronunciation understanding. Additionally, teachers serve as role models and facilitators for students during the learning process.

**Keywords:** three-dimensional virtual world, pronunciation, teachers' perspective, qualitative research.

**1. INTRODUCTION**

English has emerged as one of the most used languages for cross-cultural conversations (Quoc et al., 2021). Talking about conversation, there are many factors that can contribute to the success of a conversation when the speaker used English for communication purposes. Among those, One crucial component is pronunciation, which should not be ignored because communication cannot proceed quickly and smoothly without engaged comprehensible pronunciation (Celce-Murcia et al., 1996). However, pronunciation is one of the most complicated skills to master, and students are expected to spend a significant amount of time practicing it (Aliaga García, 2007; Pourhosein Gilakjani & Sabouri, 2016). In addition, Pronunciation study is thought to be complicated and monotonous for learners (Harmer, 2001). Moreover, acquiring adequate pronunciation is critical since incorrect pronunciation habits are difficult to change. It's such a challenging duty for current modern teachers. Considering the importance of pronunciation, it's needed guidance from the teacher on improving students' pronunciation skills. Therefore, teachers must be able to determine the best learning media so that students' pronunciation skills can develop well. A 3D virtual world is a right choice to support because it contains several benefits and is one of the current trends.

The innovation in the education field cannot be separated from the influence of the advancements in information and communication technology, especially in software and telecommunications sectors, one of which is a three-dimensional (3D) virtual world platform (Firat, 2010). 3D virtual can be described as a three-dimensional, Internet-based, networked, multimedia, simulated, and graphical environment that allows users to inhabit and interact using their own animated, graphical, and digital self-representations known as avatars (Boulos et al., 2007). An avatar in the virtual world is a representation or replication of a real-life user who has control over creating, controlling, and altering virtual lives as well as engaging with other users (Yamazaki, 2019). This 3D world can share a specific simulated reality, allowing users to accomplish work with a high level of synchronous collaboration to manage identical virtual objects (Ghanbarzadeh & Ghapanchi, 2018). It potentially allows users to manipulate their own elements as a reflection of real life or an imaginary world. In addition, text, graphical iconography, visual gesture, voice command, and balance senses have been used to communicate among users (Firat, 2010).

Over 40 years ago, visual environments have developed from the original online games (Duncan et al., 2012). (Lin, 2020), predicts that the number of monthly users of VR from 2018 to 2022 will be increased by 75.7%. According to (Petrock, 2020), the number of Virtual World users reached 90.9 million, and specifically, 57.4 million is dominated by US users. This number indicates the significant attractiveness and growth of 3D virtual technology. The largest and most popular 3D virtual world application that has been launched by Linden lab in 2003 is Second Life. By 2022, the population of Second Life exceeded over 70 million registered accounts.

Virtual worlds have been used in certain literature throughout the world as a tool for language learning (Peterson, 2011). Despite the limitation, 3D virtual offer several advantages such as flexibility in time-space, self-organized learning experiences, multi-sensory channels, and interactivity of multi-media learning (Firat, 2010). An incomparable feature of this technology is Text-based interaction, with this feature users get a more active and interactive experience as avatars in a virtual environment rather than based chat environments. Not only chat-based interaction but also real-time audio is another feature that can attract learner attention. The existence of various communication channels offers language learners extra sources of feedback. Furthermore, 3D worlds have been shown can reduce learning barriers which are anxiety and inhibition (Roed, 2003).

Some countries have utilized 3D virtual world as a learning medium. Australia and New Zealand become countries that have tried to utilize 3D immersive virtual worlds as learning mediums in higher education (Dalgarno et al., 2010). In similar, Thailand also tries to fit the student's needs and introduce students to technology in the 21<sup>st</sup> century which is 3D virtual world.

The 3D virtual world has been applied as a teaching tool in particular language skills, including vocabulary, speaking, listening, reading, writing, and grammar (Ahmet & Cavas, 2020; Kruk, 2014; Shahri & Ashraf, 2016). However, the previous studies only examine the effect of 3D virtual world on various students' skills and none of them has discussed the teacher's perspective on using this technology which is also crucial since teacher is the first medium in presenting the technology to the student. Therefore, the current research investigates teachers' perspectives on using 3D virtual world platform to increase pronunciation skills in Thailand. Two research questions have been formulated to answer this study.

1. How are teachers using the 3D Virtual World to teach pronunciation?
2. How are teachers' perspectives in teaching pronunciation using 3D Virtual World?

## **2. LITERATURE REVIEW**

### **2.1. The significance of English pronunciation**

In order to have an understandable conversation, pronunciation is supposed to be an important role. However, pronunciation is one of the complicated skills to master, and students are expected to spend a significant amount of time practicing it (Aliaga García, 2007; Pourhosein Gilakjani & Sabouri, 2016). Despite its difficulty, students can practice pronunciation independently, by following the directions provided in the form of phonetic symbols placed on each word. However, only a few learners follow these guidelines in their approach to developing clear pronunciation (Quoc et al., 2021). Therefore, to help learners learn English pronunciation effectively, teachers must obtain better methods of teaching pronunciation in a variative way.

### **2.2. 3DVW in foreign language learning**

VR is increasingly being used at various levels as a technology that is particularly adaptable to the millennial population. Along with that, the advancement of virtual world is also influencing the education field. In terms of benefits, 3D virtual world bring students to view an object in an immersive environment. VR also allows students to have comparable virtual senses as they are in the actual world, but without getting affected by any consequences of their actions in the simulated universe. Students are allowed to do anything and share their own knowledge without fear of doing many numerous mistakes. Furthermore, the use of VR can reduce educational costs while also increasing student engagement with the subject matter (Sulaiman et al., 2020).

### **2.3. Studies of Three-Dimensional Virtual World teaching and learning**

In the last recent years, many studies have been conducted on the implementation of 3D virtual world to enhance learning experiences in various ways. (Kruk, 2014) concluded that the three-dimension environment increased student motivation and attention because they experienced something different in learning grammar. Similarly, (Shahri & Ashraf, 2016) revealed the provided environment lead student more enthusiastically took part in learning speaking, communicating, and sharing their knowledge with each other.

Another research by (Ahmet & Cavas, 2020) examined the aftermath of virtual reality on the writing and reading skills of intermediate English as a foreign language (EFL) students. Immersive VR surpasses all other classic materials. Sensory three dimensions information involves students as the first person to create positive changes in their reading and writing classroom activities. Nonetheless, these studies are insufficient since none of them examined the use of the 3D virtual world in teaching pronunciation skills. Hence, the current research is trying to point out how the teachers utilize the 3D Virtual World to teach pronunciation and scrutinize the teacher's perspective of 3D Virtual World as a teaching tool.

## **3. METHOD**

This study employs a qualitative case study approach. This case study aims to assess teacher perceptions of the use of 3D Virtual World as a learning medium to teach pronunciation skills in Thailand. Furthermore, an examination of the most common approaches to qualitative research in education (Fraenkel et al., 2012) reveals that the case study design is the most appropriate since the primary goal of this research is to highlight EFL teachers' perspectives on using 3DVW for teaching pronunciation. The primary data collection approach for this study was open-ended, in-depth interviews. Open-ended interview questions allowed participants to

express themselves in their own language (Coffey & Elsayy, 2017). The researcher adapted the interview questions based on (Sallam & Alzouebi, 2014).

Since this study belongs to point out the teacher perception, a selection of two EFL teachers from Thailand shared their insights and experiences in this study. Participant selection is based on their teaching experience, specifically their apprehension of using technology in teaching and learning activities. The two selected teachers are the researcher's mentor in the academic collaboration program between Thailand and Indonesia from May 1<sup>st</sup> – September 30<sup>th</sup>, 2022 who has experience teaching English using related technology. The participants included one female and one male, aged from 25 to 30. All of them have over two-three years of teaching experience.

In recent decades, data has been collected through various methods, such as by phone, e-mail, and the internet (Creswell, 2014). (Bolderston, 2012) argued that online interview taps into the potential methodological tool for gaining the data. The two teachers were interviewed using open-ended questions on the Zoom platform. Each of the two informants was individually interviewed one time in video-recorded sessions. according to (Hatch, 2002), Interviews allow researchers to gain information about participants' viewpoints. The researcher asks permission to record the interviews beforehand. All interviews were recorded with the researcher's device. The interview was conducted after the participant finished their teaching activities and adjusted the time when teachers were available. The interviews lasted approximately 45 minutes with a brief break at the interviewees' request.

After the interview had been conducted, the researcher immediately transcribed the data. Two qualitative research techniques were employed throughout the study to ensure the data's validity and reliability. First, member checking (Fraenkel et al., 2012) was used to validate the accuracy of qualitative research documentation. The researcher emailed the transcript to the participant for evaluation and reporting on any revisions or clarifications of the transcript before being analyzed. Second, as suggested by (Evers & Staa, 2010) data analysis triangulation was carried out using data type triangulation approaches; video-recorded interviews, documented transcripts along with following up with an informal text message using Line platform.

Typological analysis approaches were used to examine the videotaped interviews that were transcribed into formal research protocols. Typological analysis is an appropriate qualitative data analysis to assist interview data (Hatch, 2002). Starting by categorizing the whole data, set according to predetermined typologies. Initial categorization of the data into typologies was followed by multiple readings, line-by-line analysis, and color-coding in Microsoft Word.

#### **4. FINDINGS AND DISCUSSION**

The analysis of interview data from informants led to the development of two major generalizations: The use of 3DVW as a learning medium for teaching pronunciation, and the Teacher's perspective on how 3DVW can help in enhancing the teaching and learning pronunciation. This paper's findings include the presentation of studies that support these broad generalizations. As the results are elaborated, samples from the interview protocol will be presented to support the generalizations (Cheuk & Hatch, 2007).

##### **4.1. The use of 3DVW as a learning medium for teaching pronunciation**

The use of 3DVW technology as a tool for teaching pronunciation classes is an innovative idea for EFL teachers. Their explanation for this emphasis included discussions of the benefits of 3DVW for English teaching pronunciation, barriers in implementation, and potential effects for

supporting students in enhancing their language abilities. Each of the categories is described in the following.

- a. The benefits of 3DVW from the perspective of pedagogy as a learning medium for teaching pronunciation

Two subcategories emerged from the data regarding the benefits of 3DVW for English teaching pronunciation; motivation in 3DVW use, and benefits of 3DVW. Two teachers gave similar explanations regarding the motivation for using 3DVW as a teaching medium. Previously, the two teachers discovered 3DVW in social media. Several teachers have used this platform on social media, and they are interested and believe that this media can attract students' interest in learning pronunciation.

*I saw it on my Facebook and they share the class about teaching. I saw it and I tried to apply this to English teaching pronunciation. (T1)*

A major similarity from teacher 2 when discovering 3DVW was from their friend and Youtube, teacher 2 outlined

*Firstly, I learn about this app from my friend, then I search more about this platform, and I try to learn from youtube. (T2)*

Despite this being their first time utilizing the 3DVW, both teachers agreed that it was beneficial to their teaching. One teacher stated that 3DVW is an interactive platform:

*The best platform for me, my students can interact with me well also they can learn with themselves. They can use English with the application. I think it's quite good. (T1).*

The teacher described 3DVW lead to better interaction between student and teacher. Encouraging students to be more independent in learning. Furthermore, One teacher described the 3DVW:

*3D is teaching materials that can develop a reading vocabulary for pronunciation and also design a variety of teaching materials. (T2)*

The teacher explained that 3DVW allows teachers to develop educational materials that can help with vocabulary and pronunciation. With 3DVW, teachers can create simulations, visualizations, and other immersive learning experiences that enable students to better comprehend a variety of topics. One teacher noted:

*When they go to 3DVW, the virtual classroom I created they could go and see some pictures like an exhibition. (T1)*

From the teachers' perspective, there were definite similarities between motivation and the benefits of the platform. Both two teachers were motivated by social media and other teachers' experiences. In addition, the teacher seemed interested in 3DVW, noting that it provided students with an exciting way to learn. The next section will deal with some of the challenges of implementing 3DVW in pronunciation class.

- b. The barriers to 3DVW integration in EFL context

While there were some clear benefits to incorporating 3DVW into the pronunciation class, teachers highlighted certain barriers or technical issues that hindered the proper integration of 3DVW in the EFL context. These barriers were classified into three categories: the teacher's incompetence in IT and pronunciation skills, student unawareness, and some technical problems.

Along with the lack of familiarity with 3DVW, one teacher revealed that it was challenging to understand 3DVW because it was her first time using it. This meant, the teacher had to take time out of the day to learn the platform before effectively teaching it to the students.

*I have a new technology for them, but I do not understand it enough, I have to understand and learn more about this platform. (T2)*

Despite the challenges posed by the unfamiliar technology, there was an even bigger challenge that needed to be addressed, which was the teacher's pronunciation. as one teacher noted:

*Problems with my skill at English pronunciation. (T1)*

The teachers told the interviewer that he had problems with his pronunciation skills. The teacher was struggling to pronounce some words correctly. In addition, another challenge the teacher faced was the student's unawareness of learning. Teachers reported that it was often difficult to maintain students' focus in the 3DVW activities. A teacher noted:

*I think it was quite good at first, but almost the last time they could not pay attention more. (T1)*

The teacher revealed that most students lost their focus after the first few sessions. It was clear to the teacher that after a few sessions, the students began to lose focus and failed to pay attention, making it difficult for them to learn. This was a common pattern the teacher noticed, as the novelty of learning quickly wore off and students failed to stay engaged in the lesson. T2 also experienced the same problem. The teacher revealed:

*They are not concentrating in the classroom. They were fun, but after 20 minutes, they are not interested, and they do not concentrate on learning, this is the problem. (T2)*

The teachers reported that, despite their best efforts, the students still struggled to remain focused after 20 minutes on their studies. The students were having fun and seemed to be engaged in their learning, but after a couple of minutes, their attention started to wane. Surprisingly, the teachers also reported some technical problems in the classroom, such as unsupported devices, that could disrupt the learning process and cause the students to lose interest even faster. As the two teachers experienced;

*It was about my television, but I know how to solve the problem. I think something is quite weird for me, when I turn on the TV when I go to school for*

*the first time, it's quite good, but if I turn it off for a lunch break and then go back to turn it on again, it cannot show anything. (T1)*

*It's another one, I only have a small television, Well, I need to buy a new big projector for them. (T2)*

The two teachers experienced similar issues with their televisions. Both T1 and T2 realized that their students had difficulty seeing the content of the lessons when viewed from their small television screens. This was an issue the teachers experienced directly, and it highlighted the need for updated technology in the classroom to keep their students engaged. Thus, The teacher believed additional technical support must be added to help the students stay engaged. One teacher noted:

*I don't have glasses to make them experience a more real environment. (T2)*

In an immersive environment, smart glasses are essential equipment for providing students with an enriched learning experience. With smart glasses, the students could experience the learning material as if they were actually in the environment. The next section will present the effect of 3DVW on student competencies.

c. The effect of 3DVW on improving students' language competencies

The introduction of 3DVW has opened up a whole new world of educational possibilities. Two of the center teachers deemed that 3DVW had a major positive impact on students' pronunciation competencies. One of the teachers noted that when students learned 3DVW, their ability to pronounce words improved noticeably.

*It's quite a difference, they can pronounce words very well, and they can remember many vocabulary words when I teach using this platform, they can learn by themselves, it's better than just doing more activities in the classroom. (T1)*

The teacher reported that the use of 3DVW encourages students to articulate sounds more precisely and accurately, helping to improve their overall pronunciation. Another teacher added:

*Before I used the Metaverse for pronunciation class for my students, I had to teach phonetics, so my students had a good understanding of phonetics before, but when I added the Metaverse, it was easier for them to understand and pronounce the word. (T2)*

This is a significant contrast, as the students are able to quickly grasp the concepts of pronunciation, and apply them in a practical way. The teacher agreed that the use of 3DVW had helped her students to not only better understand phonetics, but also to more accurately pronounce words in English. Not only did the 3DVW platform help students understand and pronounce words better, but it also made them more motivated to learn, as they were able to practice and learn by themselves outside of the classroom.

*It can make my student do the task by themselves when they are practicing, and they can practice individually. (T1)*

*Increased, they are very interested with Metaverse, after go back to school, they learn it by themselves.(T2)*

The teachers revealed that 3DVW had continually increased student self-learning and helped students become more independent and take on more responsibility for their own learning. The next section will describe the teacher's perspective and their roles in teaching using 3DVW.

#### 4.2. Teacher's perspectives and roles in teaching using 3DVW

##### d. A non-native teacher as a role model

All of the teachers believe that non-native speakers could be a good example for Thailand's English students. Despite the fact that the teachers are not native speakers, they have passed through the pronunciation learning process and have always practiced appropriate pronunciation. As a result, they are confident in becoming a good pronunciation model for their students, as one teacher pointed out.

*I am as metaverse, so I am 3D for them, I put my face in the application, I am teaching on the metaverse, and when I finish teaching, they return to the metaverse. I have to speak out and they are repeating after me, I have to explain and be roleplaying for them, and choose one student to play roleplaying with me in the classroom, and repeat after teacher, when I speak they can hear from the application. (T2)*

The teacher emphasized the importance of being a role model for the students, not only providing a good pronunciation model but also creating a lively environment for them by incorporating virtual reality into the classes. On the other hand, another teacher stated that their role in class was to be a facilitator, guiding the students to become independent learners and encouraging them to take initiative in their learning.

*we have to observe student who need help or not, so I think it's quite good, but we teacher need observe students carefully, and sometime we have to help students as in normal class, but when they are practicing, they can practice by the self. (T2)*

##### e. Teacher's perspective toward 3DVW for teaching pronunciation

The two teachers perceived that 3DVW could be a great tool for teaching pronunciation. 3DVW, according to one teacher, can provide a much more immersive experience than traditional methods, allowing students to pronounce words more concretely and gain new-world insight.

*It's a good application and new to learn. It can make my student also explore other environments from all over the world, we can see the creation and get more ideas in another country on Metaverse. (T2)*

The teacher revealed that with 3DVW, students are not only able to pronounce words more accurately, but they can also gain a deeper insight into the material of other countries. In addition, another teacher also pointed out the positive view toward 3DVW.

*I think it's quite good for teachers in teaching, even every skill and topic that we are going to teach them. (T1)*

To answer the first research objective about how teachers are using the 3D virtual world to teach pronunciation, the findings of this study show alignment in terms of ease, barriers, and effect. During the interview phase, the two teachers agreed that 3DVW is an innovation that supports the teaching and learning process. The most notable advantage that the majority of teachers agreed on is that 3DVW promotes interactive communication and engagement between students and themselves. Through this medium, teachers are also able to facilitate meaningful interactions and material for their students, which is fundamental in any learning environment. In light of the material, teachers can create immersive material that could make students experience a different sense of learning. Besides, this study also reaffirms the challenges within the implementation of 3DVW, which have been disruptive to the learning process. However, even if the 3DVW is an interactive platform, it is unavoidable that 3DVW has some shortcomings. The findings revealed unfamiliarity with the technology can be a major concern for teachers because it can cause a gap between the learning process and the teacher's comprehension of the material. This aligns with the explanation of (Hooper & Rieber, 1995) that the teacher's greater understanding is an invaluable resource and guidance for the learner. In addition, both teachers face a similar challenge in keeping students engaged and not distracted by the 3DVW's playful features. (Tili et al., 2022) stated that the virtuality and fun of the metaverse are always applied in game-based learning. The immersive quality and playful features of 3DVW can be an impediment for teachers because it can cause distraction and a shift in student focus away from the real learning objectives. Hence, the necessity for updated classroom technology to keep students engaged must also be considered. Since the 3DVW materials are often displayed on a television, both teachers noticed that their students had difficulties viewing the material on a small television screen. As mentioned by (Hooper & Rieber, 1995), the role and value of product technology were reinforced in the practices of classroom teachers. In light of supporting features, the teacher realized that the lack of a supporting feature such as smart glasses also hampered the implementation of 3DVW in the classroom. As smart glasses provide teachers with the ability to project 3D images in a more visual and interactive way to the students, this would help the students understand the material easily. Further, this analysis also demonstrates how the use of 3DVW influences student competency. The outcome initially stated that the use of 3DVW encouraged students to articulate sounds more precisely and accurately, helping to improve their overall pronunciation. In the interview, the teacher pointed out that 3DVW provides students with pronunciation guidance. Students can imitate how to pronounce some words more precisely. Not only did the 3DVW platform help students understand and pronounce words better, but it also made them more motivated to learn, as they were able to practice and learn by themselves outside of the classroom. Students can easily learn anywhere because 3DVW can be accessed online and independently from their mobile phones.

In keeping with the teacher's perspective on using 3DVW for teaching pronunciation, the ultimate discussion deals to answer the second research question. The teacher plays a crucial role in teaching pronunciation using 3DVW. The findings revealed that teachers are confident in becoming good pronunciation models for their students. Becomes a model from time to time,

providing clues, recommendations, and constructive feedback to help students navigate the learning process. This is in line with the role that (Morley, 1991) describes as "speech coach or pronunciation coach". However, the finding shed, that the role of the teacher is not simply to teach, but also to facilitate learning by monitoring students' progress, providing personal attention when needed, and assisting students in becoming self-directed learners outside the classroom environment.

Last but not least, it can be highlighted that teachers have a positive perception of using 3DVW for teaching pronunciation. They acknowledge its advantages over other teaching methods as it increases students' pronunciation. Students can imitate how to pronounce some words precisely. As prior research has shown, instructors' pedagogical and technological knowledge contribute to the successful implementation of digital teaching-learning activities (Comas-Quinn, 2011; Hauck & Stickler, 2006). This research further indicated that the role of teachers is more than just delivering instruction, but rather creating an environment that encourages students to learn. Lastly, teachers must monitor and observe their student's progress and provide feedback that will assist students in achieving their desired outcomes.

## **5. CONCLUSION**

Findings from the case study revealed EFL teachers have positive perceptions of the use of 3D virtual worlds in English language teaching. It is fascinating to note that the item stating that teaching English with 3DVW will encourage students' enthusiasm to learn English pronunciation had the highest mean. This demonstrates that the majority of teachers have positive pedagogical perspectives about the integration of technology in English teaching. Such previous research by (Albion & Ertmer, 2002; Ertmer et al., 2001) has shown that positive perceptions play an important role in the adoption of new technology. Although both teachers agree that 3DVW still has an adequate challenge, it is not denied that incorporating 3DVW into English pronunciation classes brings some benefits to students. First, teachers can create a variety of learning materials to focus on a student's needs. By adding a pronunciation guide, students can easily imitate the sound of words accurately. Second, the interesting environment of 3DVW is one of the advantages. Teachers can create an immersive learning environment to enhance their lesson content and draw students' attention. Hence, all of the teachers agreed that non-native speakers could be role models for Thai English learners. Finally, since this is a case study, the samples are inadequate for generalization. In other words, the findings of our study may be consistent with those of future research. Teachers' and students' thoughts should be considered as primary subjects of investigation in future research. This action may allow researchers to acquire a comprehensive picture of the use of 3DVW for English pronunciation.

## **6. SUGGESTION FOR FUTURE RESEARCH**

The perspectives of EFL teachers regarding the 3DVW platform in particular were examined in this study. It would be fascinating to investigate teachers' thoughts using further variables including age, gender, experience, and so on. Furthermore, because this study is restricted to a specific geographical area, a comparable study in other EFL or ESL contexts is required to examine the outcomes for fit and misfit of teachers' thoughts on 3DVW usage. It is also strongly advised that bigger survey samples be obtained for comparable future investigations. A broader case study and a wider survey distributed to a more varied sample might assist to strengthen the outcomes. The data for the study was acquired through an interview with EFL teachers on their perspective toward technology. However, the researchers did not observe actual practices, and this approach might be valuable in future studies to provide a better understanding of what teachers show in actual practices. It might be quite fascinating to compare perceptions and real

constraints of the 3D metaverse in the teaching process.

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